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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,903	05/02/2002	Takahiko Kawasaki	I-184	9865

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EXAMINER
TRAN, LY T

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 08/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/030,903	KAWASAKI ET AL.
	Examiner	Art Unit
	Ly T TRAN	2853

-- The MAILING DATE of this communication app ars on the cover she t with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 June 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 11-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,11-15 and 22* is/are rejected.

7)☒ Claim(s) *4-9 and 16-21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Claims 1, 3 and 14 are withdrawn from allowable subject mater.

2. Claim 23 is cancelled due to its dependency on claim 10, which has been cancel in paper number 8.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 11, 14 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Koitabashi et al. (USPN 6,325,492).

With respect to claim 1, Koitabashi et al discloses an ink jet apparatus having:

- First ejection elements formed respectively near each of the nozzles for ejecting the ink from the nozzle and forming an image by driving the first ink ejection element to eject the ink (Fig.4: element SH2, Column 12: line 16-17)

- Second ink ejection elements formed respectively upstream against the ink ejection direction before the first ink ejection element for ejecting the ink from the nozzle (Fig.4: element SH1)
- A controller which drives, on prescribed ejection recovery, the first ink ejection elements and the second ink ejection elements simultaneously to eject the ink through the nozzles for ink ejection recovery (Column 12: line 27-30, Line 52-55).

With respect to claim 2, Koitabashi et al discloses an ink jet apparatus having plural ink e ejection elements formed respectively near each of the nozzles for ejecting the ink from the nozzle (Fig.4: element SH2, SH1) forming an image by driving any of the ink ejection element to eject the ink (Column 12: line 14-17) wherein the ink jet apparatus comprising a controller which drives, on prescribed ejection recovery, two of the ejection elements simultaneously to eject the ink through the nozzles for ink ejection recovery (Column 12: line 27-30, Line 52-55).

With respect to claim 11, Koitabashi discloses an ink jet apparatus having first ejection elements formed respectively near each of the nozzles for ejecting the ink from the nozzle and forming an image by driving the first ink ejection element to eject the ink (Fig.4: element SH2, Column 12: line 16-17), second ink ejection elements formed respectively upstream against the ink ejection direction before the first ink ejection element for ejecting the ink from the nozzle (Fig.4: element SH1), a controller is provided which dives the first ink ejection elements at a prescribed first timing and

drives the second ink ejection element at a second timing later than the first timing (Column 13: line 8-20)

With respect to claim 22, Koitabashi et al discloses ink ejection element is a heater element which generates heat (Fig.4: element SH1, SH2)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koitabashi et al. (USPN 6,325,492) in view of Kaneko (USPN 6,033,051).

Koitabashi discloses driving the second heat element to perform the recovery.

However, Yamashita fails to teach the counter for counting the number of times of driving of the first ink ejection element and controller drives the second ink ejection elements when the count of the counter reaches a prescribed number of times.

Kaneko teaches counting a number of ink ejection data and operating the recovering based on counting (Column 7: line 46-60).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teaching of Yamashita to counting a number of ink ejection data and operating the recovering based on counting as taught by Kaneko.

The motivation of doing so is to minimize an amount of waste ink and minimize possibility of damaging of a print head by restricting number of times to perform the recovery operation to the possible minimum number.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koitabashi et al (USPN 6,325,492) in view of Keneko as applied to clam 12 above, further in view of Hosono (6,488,354).

Koitabashi fails to teach a temperature sensor to detect the temperature of the head and change the number of times of driving the ink ejection element accordance with the temperature detected by the temperature sensor.

Hosonoi teaches a temperature sensor to detect the temperature of the head and change the number of times of driving the ink ejection element accordance with the temperature detected by the temperature sensor (Column 18: line58-56, Column 19: line 22-40, table 3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teaching of Koitabashi to have a temperature sensor to detect the temperature of the head and change the number of times of driving the ink ejection element accordance with the temperature detected by the temperature sensor as taught by Hosono. The motivation of doing so is the flushing operation can be performed suitable for a state of the viscosity of the ink therefore it can be more surely prevented that the nozzle is clogged with the ink.

6. Claims 3 and 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koitabashi et al (USPN 6,325,492) in view of Ishinaga et al. (USPN 6,199,972).

Koitabashi fails to teach changing timing of ink ejection in correspondence with the shape of the ink liquid face at the outlet of the nozzle.

Ishinaga et al teach changing timing of ink ejection in correspondence with the shape of the ink liquid face at the outlet/meniscus of the nozzle (Column 7: line 20-44).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teaching of Koitabashi et al to change the timing of ink ejection in correspondence with the shape of the ink liquid face at the outlet/meniscus of the nozzle as taught by Ishinaga et al. The motivation of doing so is to adjust the amount of ink discharged.

Allowable Subject Matter

7. Claims 4-9, and 16-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 4-9 and 16-21 are allowable over prior art of record because at least prior art have not been found to anticipate to teach on prescribed ejection recovery, both of the first and second ink ejection element simultaneously at prescribed time intervals intermittently in correspondence with the temperature detected by the temperature sensor to eject the ink through the nozzles.

Response to Arguments

8. Applicant's arguments with respect to claims 2 and 11 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ly T TRAN whose telephone number is 703-308-0752. The examiner can normally be reached on M-F (7:30am-5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 703-308-4896. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0967.

July 31, 2003

Stephen D. Meier
Primary Examiner